Electronic TUBES

6CL8-A—5CL8-A

TRIODE-TETRODE

DESCRIPTION AND RATING

The 6CL8-A is a miniature tube which contains a sharp-cutoff tetrode and a medium-mu triode in one envelope. Primarily intended for service as a combined triode-oscillator and tetrode-mixer in VHF television tuners, the tube features a controlled heater-warm-up characteristic which makes it especially suited for use in television receivers with series-connected heaters.

The 6CL8-A is unilaterally interchangeable, both electrically and mechanically, with the 6CL8. It differs primarily from the 6CL8 in having a tetrode section with lower grid-plate capacitance and higher transconductance.

Except for heater ratings, 5CL8-A is identical with the 6CL8-A.

GENERAL

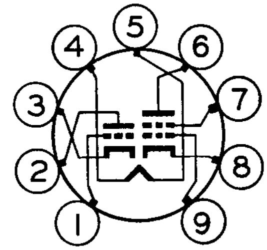
ELECTRICAL	5CL8-A	6CL8-A	
Cathode—Coated Unipotential			
Heater Voltage, AC or DC	4.7	6.3	Volts
Heater Current	0.6	0.45	Amperes
Heater Warm-up Time*	11	11	Seconds

Direct Interelectrode Capacitances	With Shield†	Without Shield	
Tetrode Section			
Grid-Number 1 to Plate, maximum	0.01	0.02	μμf
Input	5.0	5.0	μμf
Output	3.0	2.0	μμf
Triode Section			
Grid to Plate	1.8	1.8	μμf
Input	2.8	2.8	μμf
Output	2.0	1.5	μμf
Tetrode Grid-Number 1 to Triode Plate, maximum	0.01	0.015	μμf
Tetrode Plate to Triode Plate, maximum	0.03	0.15	μμf
Heater to Cathode, Each Section	3.0‡	3.0	μμf

MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

BASING DIAGRAM

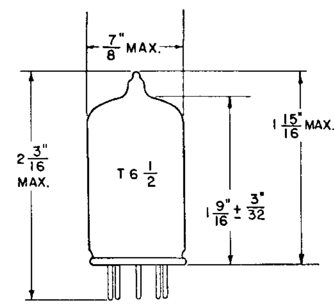


EIA 9FX

TERMINAL CONNECTIONS

Pin 1—Triode Grid
Pin 2—Triode Plate
Pin 3—Triode Cathode
Pin 4—Heater
Pin 5—Heater
Pin 6—Tetrode Plate
Pin 7—Tetrode Grid Number 2 (Screen)
Pin 8—Tetrode Cathode
Pin 9—Tetrode Grid Number 1

PHYSICAL DIMENSIONS



EIA 6-2

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GENERAL ELECTRIC

Supersedes ET-T1473, dated 10-57

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

	5CL8-A	6CL8-A	
Allowable Heater Current	0.56 to 0.64	0.42 to 0.48	Amperes

	Tetrode Section	Triode Section	
Plate Voltage	330	330	Volts
Screen Supply Voltage	330	....	Volts
Screen Voltage—See Rating Chart			
Positive DC Grid-Number 1 Voltage	0	0	Volts
Plate Dissipation	3.0	2.5	Watts
Screen Dissipation	0.55	....	Watts
Heater-Cathode Voltage			
Heater Positive with Respect to Cathode			
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
Total DC and Peak	200	200	Volts
Grid-Number 1 Circuit Resistance			
With Fixed Bias	0.25	0.5	Megohms
With Cathode Bias	1.0	1.0	Megohms

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

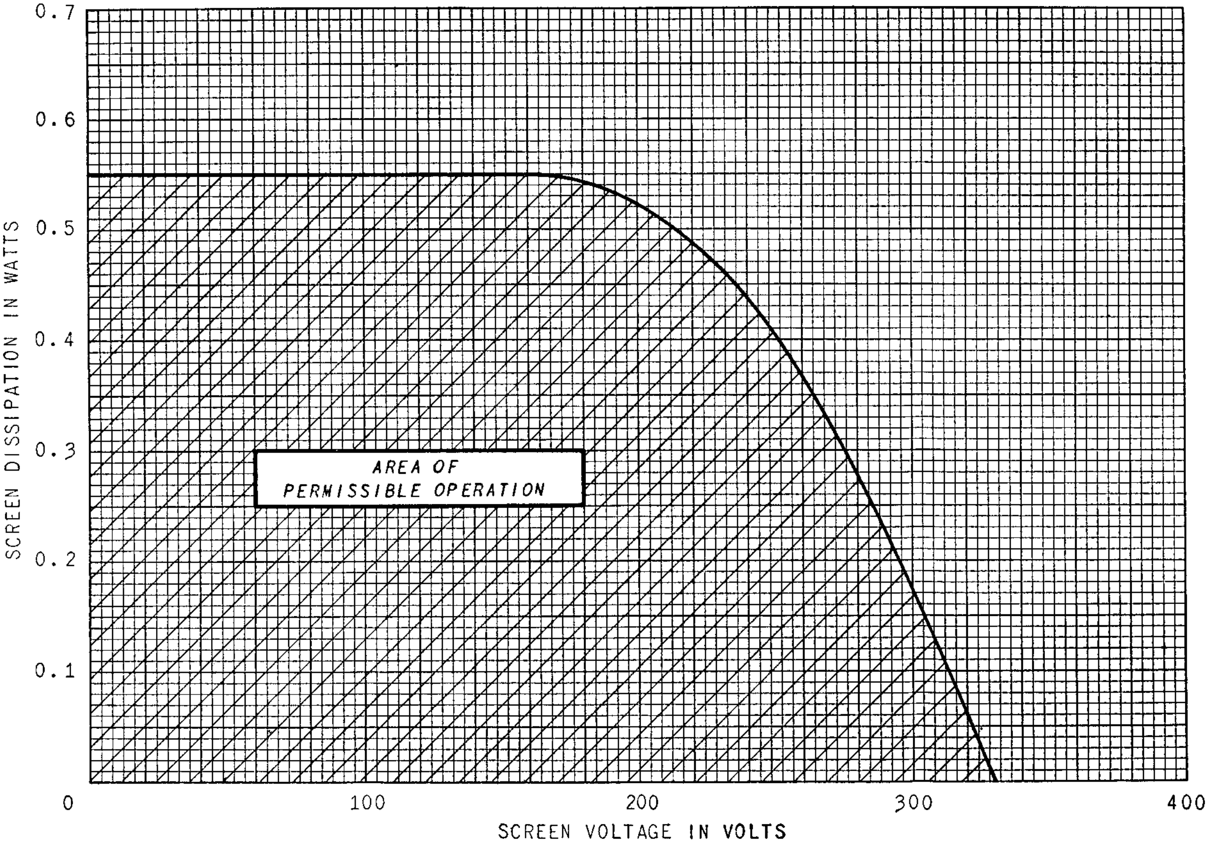
	Tetrode Section		Triode Section	
Plate Voltage	100	125	125	Volts
Screen Voltage	70	125	....	Volts
Grid-Number 1 Voltage	0	−1.0	−1.0	Volts
Amplification Factor		....	40	
Plate Resistance, approximate		200000	5000	Ohms
Transconductance	7000	6500	8000	Micromhos
Plate Current		12	14	Milliamperes
Screen Current		4.0	....	Milliamperes
Grid-Number 1 Voltage, approximate				
Ib = 20 Microamperes		−9	−9	Volts

* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

† With external shield (EIA 315) connected to cathode of section under test unless otherwise indicated.

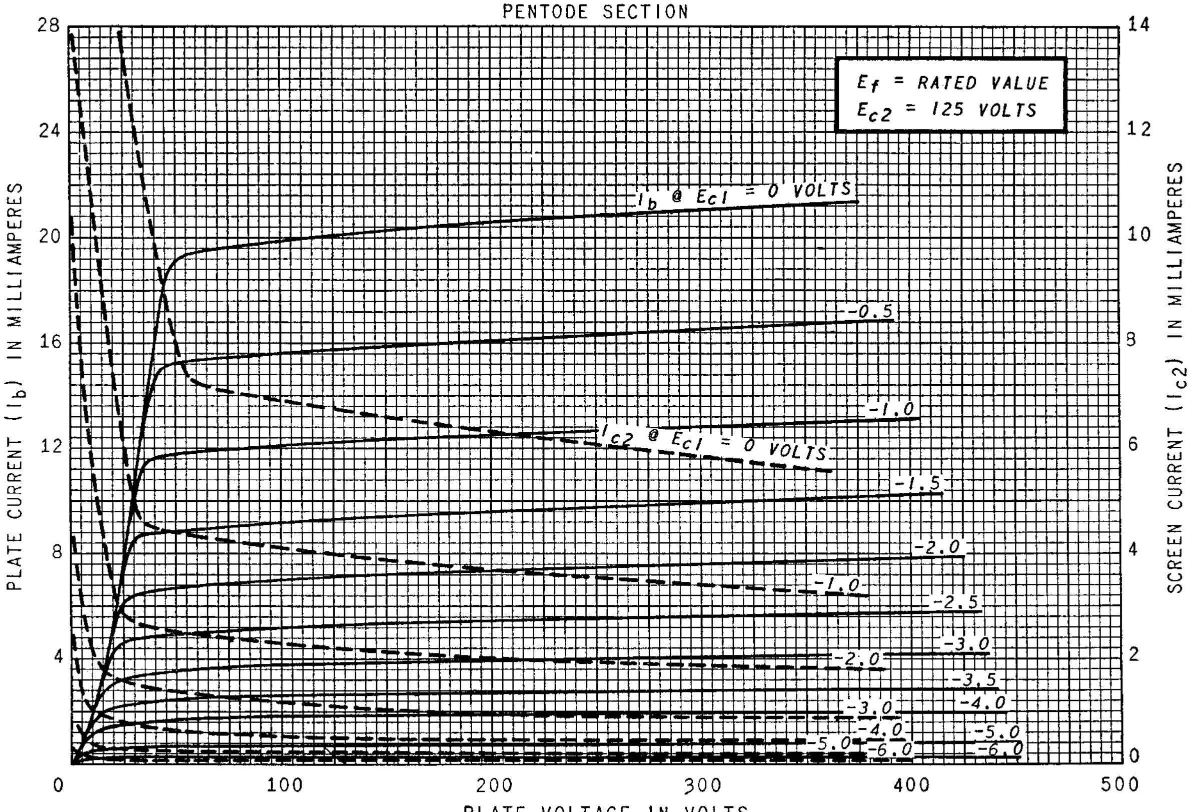
‡ With external shield (EIA 315) connected to ground.

SCREEN RATING CHART



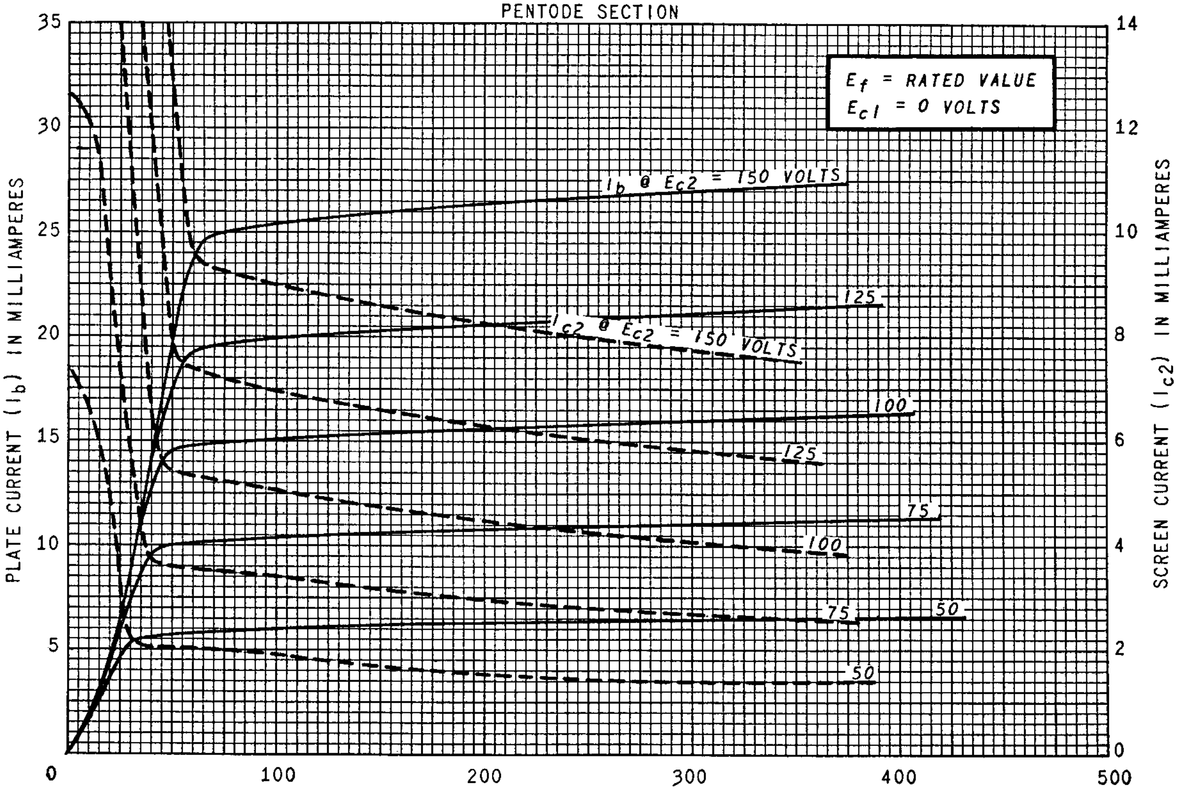
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION



AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION

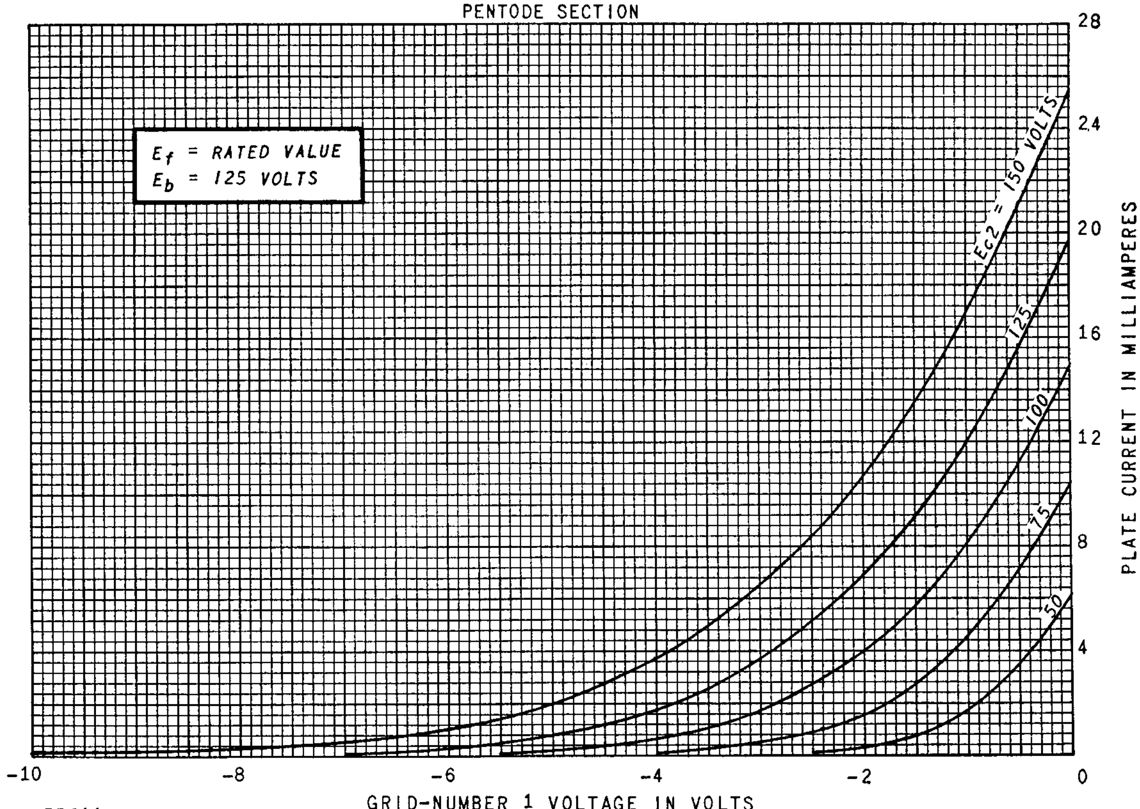


K-55611-TD9-3

MAY 26, 1959

AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION

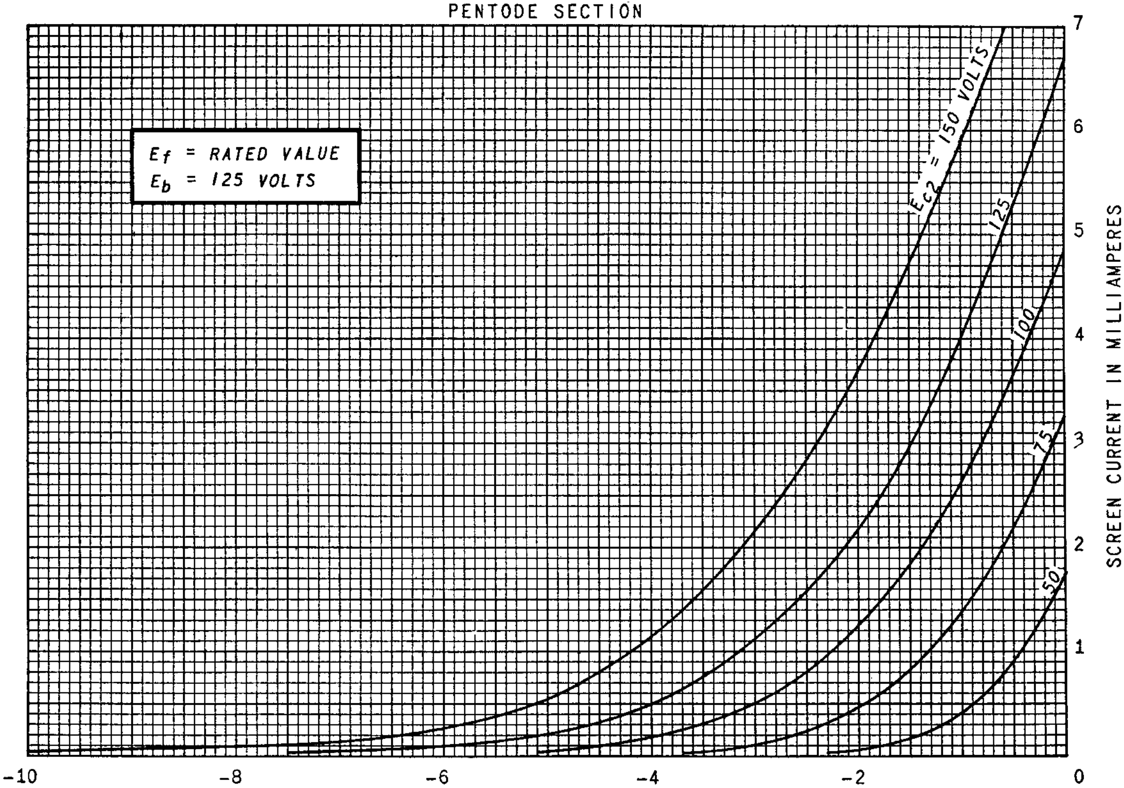


K-55611-TD9-4

MAY 26, 1959

AVERAGE TRANSFER CHARACTERISTICS

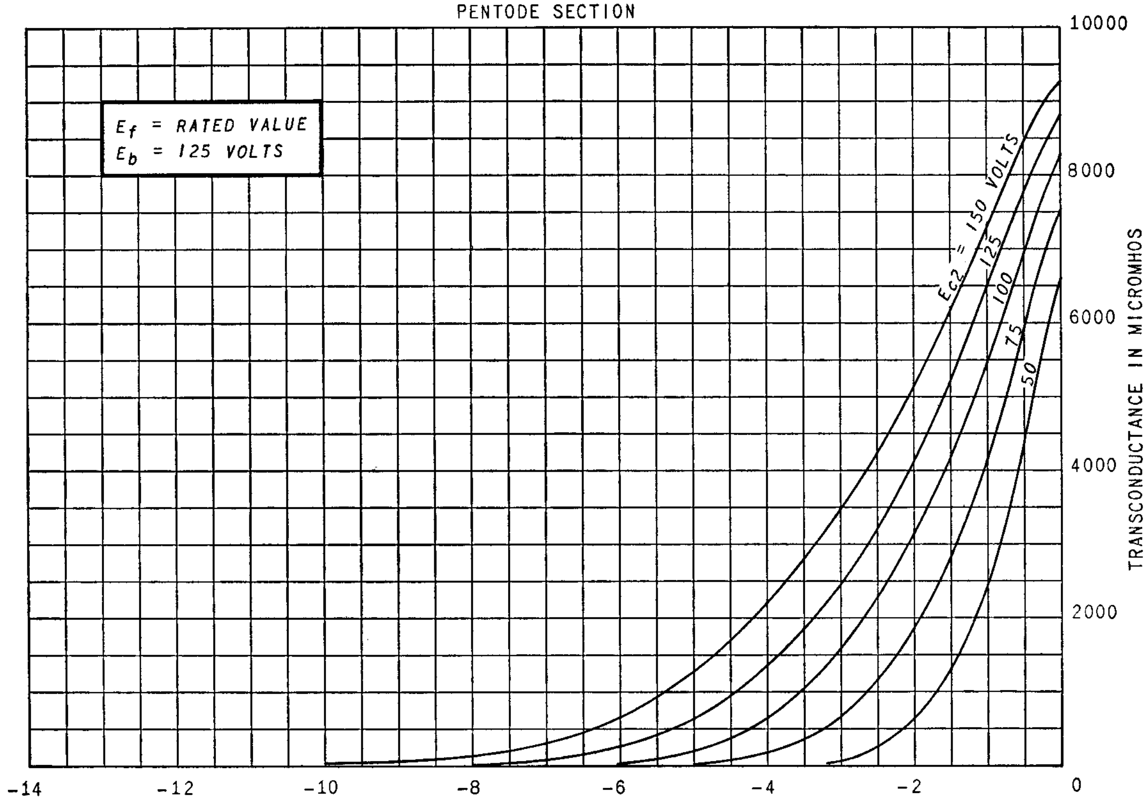
PENTODE SECTION



K-55611-TD9-5 MAY 26, 1959

AVERAGE TRANSFER CHARACTERISTICS

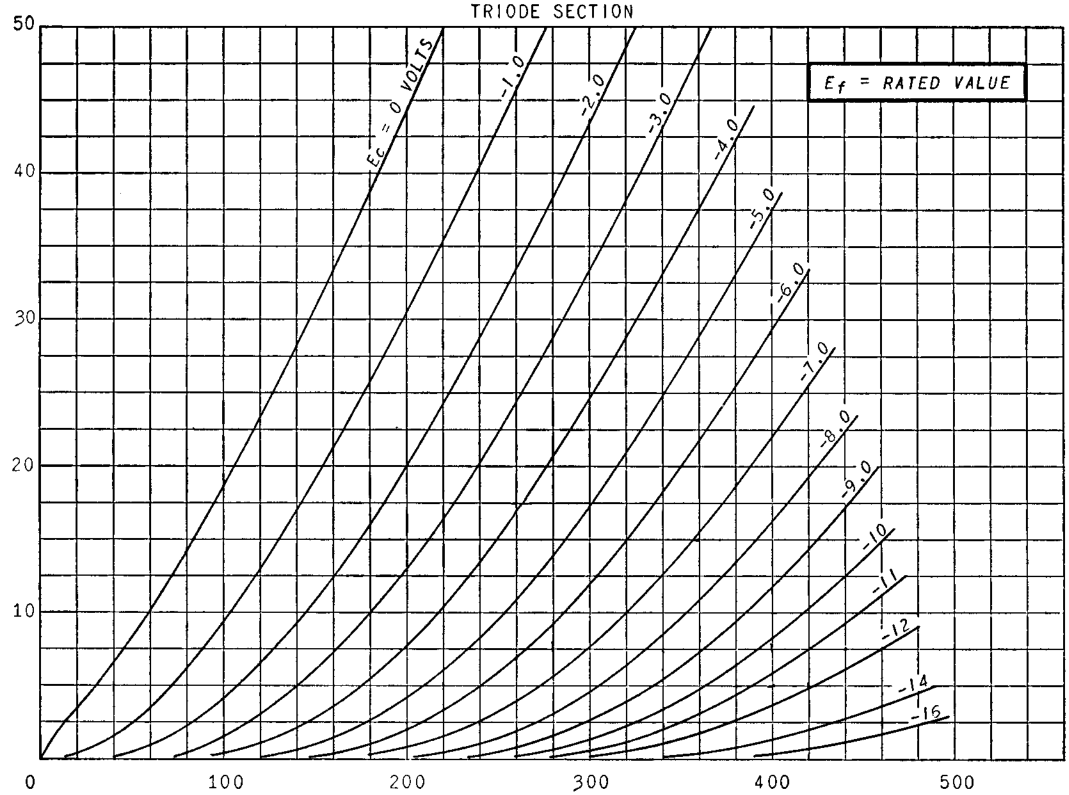
PENTODE SECTION



K-55611-TD9-6 MAY 26, 1959

AVERAGE PLATE CHARACTERISTICS

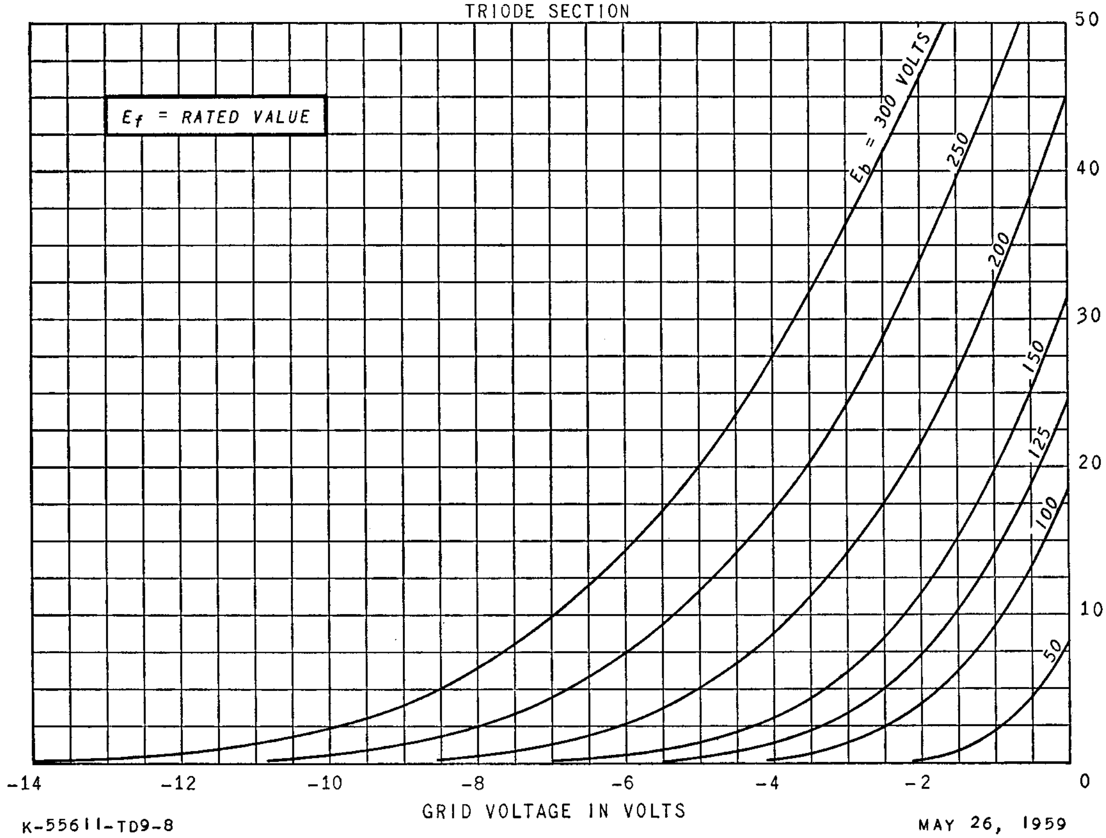
TRIODE SECTION



K-55611-TD9-7 MAY 26, 1959

AVERAGE TRANSFER CHARACTERISTICS

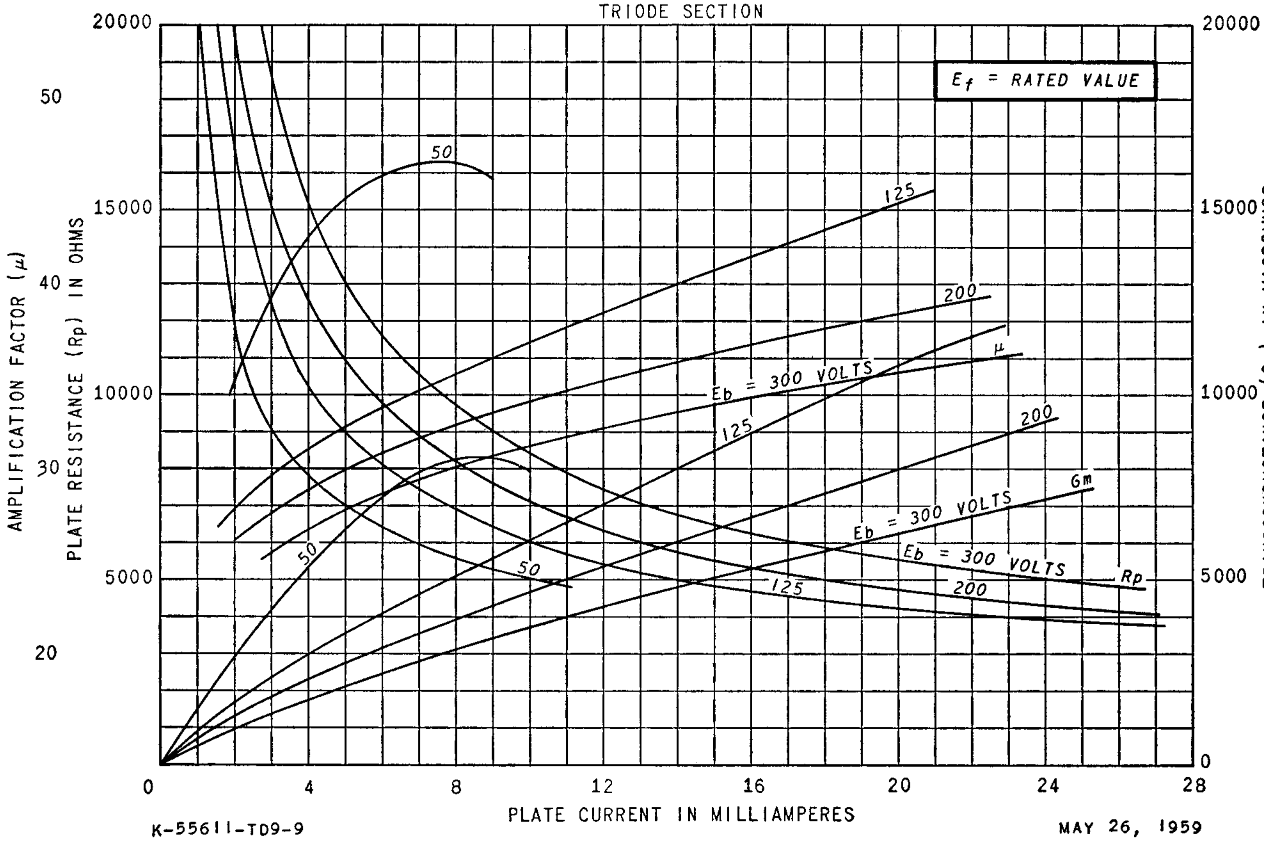
TRIODE SECTION



K-55611-TD9-8 MAY 26, 1959

AVERAGE CHARACTERISTICS

TRIODE SECTION



K-55611-TD9-9

MAY 26, 1959